**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION**

INTELLECTUAL VENTURES I LLC,
 	
     Plaintiff,
 	
     v.
 	
T-MOBILE USA, INC., T-MOBILE US, INC., ERICSSON INC., and TELEFONAKTIEBOLAGET LM ERICSSON,
 	
     Defendants.
	Civil Action No. 2:17-cv-00577-JRG
	
	JURY TRIAL DEMANDED

**PLAINTIFF INTELLECTUAL VENTURES I LLC'S
<u>REPLY CLAIM CONSTRUCTION BRIEF</u>**

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I.   Introduction

Plaintiff Intellectual Ventures I LLC ("IV") submits this reply brief in support of its

proposed claim constructions. Unlike those proposed by Defendants, IV's constructions are

consistent with the plain and ordinary meaning of the disputed terms and are fully supported by

the intrinsic evidence.

II.   Packet Transmission Variation Terms: "in an isochronous manner" and "periodic variation"

A.   "in an isochronous manner"—'629 claim 1, '971 claim 12, '206 claim 123

Defendants rely on a portion of the specification that says "it is important to maintain an

isochronous (i.e., in phase with respect to time) connection" but do not adopt that language for

their construction. Defs' Br. 11 (citing '629 patent, 61:41-46). They then reject IV's

construction, which is also based on language from the specification: "isochronous (i.e.

consistent timed access of network bandwidth for time-sensitive voice and video) traffic." '629

patent, 13:58-60. Rather than adopt either definition from the specification, Defendants ask the

Court to adopt a "layman-friendly" simplification (Defs' Br. 11). However, the proposed

"consistent time interval" has no antecedent in the specification and is being used improperly to

try to shade the meaning of the claim for later stages of these proceedings.

B.   "periodic variation"—'629 claim 3, '971 claim 14

Defendants' proposed construction would read:

> 3. The method of claim 1, wherein there is no [changing of the
> placement between frames, while maintaining a consistent time
> interval] between the placing of said first data packet in said first
> slot and the placing of second data packet in said slot.

'629 patent, cl. 3. The relationship between frames, slots, and consistent time intervals is

unclear, and there is no way that a jury will understand what this means. The claim construction

process should narrow issues, not proliferate them.

III.   "host workstation"—'971 claim 12

A "host computer" is a staple term of computer science, which appears in tens of thousands of patents in the PTO database. The word "host" simply means that the device can connect to a network. Similarly, a "host workstation" is a host computer that also functions as a workstation—i.e., it has a terminal or interface to accept input. Defendants ask the Court to add three additional limitations to the plain and ordinary meaning: "host workstations must (a) serve as "end-points"; (b) be capable of serving as a source or destination of an IP flow; and (c) communicate to or from a subscriber end-point. Defs' Br. 16. IV does not dispute that a host workstation runs applications, but it is unclear what an "end-point" is, and there is no "end-point" requirement in the specification. A "host workstation" is a general purpose computer and is not defined by a specific software protocol (IP), or communication recipient (subscriber). If a host workstation uses UDP (a protocol) to send a message to someone on the Internet (not a subscriber), it is still a host workstation. Plain meaning is sufficient here.

IV.   "to optimize end user quality of service (QoS) for an Internet Protocol (IP) flow"—'971 claim 12, '206 claims 1, 19, 121

Defendants have failed to show by clear and convincing evidence that each of the claim terms at issue is indefinite. The specification and prosecution histories inform a person of ordinary skill that a network operator can optimize end-user QoS for an IP flow by differentiating between traffic or service types and allocating a different level of system resources to an IP flow. Under IV's construction the asserted claims are not indefinite because a person of ordinary skill would understand with reasonable certainty how to optimize end-user QoS for an IP flow. D.I. 111-10 (Williams Decl.) ¶¶ 16-28. Defendants have not established the contrary. As Dr. Williams explains, Dr. Rubin's conclusions are contrary to the disclosures of the specification and the understanding of a person of ordinary skill. *See* Second Williams

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Decl.[1] At the minimum, there is a question of fact.

Defendants opted not to provide a construction, going for broke on indefiniteness and collateral estoppel despite differences in claim language between the asserted claims and the single claim litigated in the District of Delaware. They have failed to meet their burden, and the Court should adopt IV's construction and reject Defendants' invalidity arguments.

1.   IV's Construction

In its opening brief, IV pointed to key portions of the intrinsic record. In particular, IV discussed two office action responses, both of which equated optimizing end-user QoS with differentiating between types of traffic and service, something which was not possible in the prior art. Indeed, in the '478 office action response, the patentee put "optimize" in italics and bold along with the definition: "The present invention *optimizes* end-user quality of service (QoS) by *differentiating between types of traffic or service types so that differing levels of system resources can be allocated to these different types*." D.I. 111 Ex. 5 at 13 (emphasis in original) (Opening Br. 11-12).

Defendants do not contest that IV's construction comes directly from the prosecution history and is tied to the disputed claim language. Instead, Defendants concede that the office actions are relevant, but repeat their argument that "there is no difference between" the terms here and in the '248 case. Defs' Br. 4. They refer to other portions of the prosecution history that reference "applications," a word that does not appear in the asserted claims. Defendants do not examine the language of the claim elements in dispute or the pertinent prosecution history, in effect asking the Court to ignore the intrinsic record.

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[1] August 20, 2018 Second Declaration of Dr. Tim A. Williams in Support of Intellectual Ventures' Proposed Claim Constructions, filed concurrently herewith.

What little Defendants say about construction is easily dismissed. Contrary to Defendants' contention, IV's construction does not eliminate the concept of end-user QoS (Defs' Br. 8)—it provides the meaning that term would have to a person of ordinary skill. And using a random number generator is silly, but if the network operator decided to randomly prioritize a specific IP flow for a specific user over all others, obviously the quality of service for that flow would be optimized. Defendants also incorrectly argue that IV's construction conflates optimization with the claimed "classifying" step in the '206 patent. Defs' Br. 7-9. Claim 1 of the '206 patent claims the steps of classifying an IP flow and then scheduling that IP flow so as to optimize end-user QoS associated with that IP flow. The classifying step refers simply to the step of classifying the IP flow based on some other criterion, which could be traffic type. It does not involve differentiating between classifications, or treating differently-classified IP flows in a different way by *allocating a different level of resources*. There is no conflation under IV's construction; these are distinctly claimed steps.

In short, Defendants present no construction, elide the prosecution history, and fail to take account of the differences in claim language with the '248 patent. Accordingly, the Court should adopt IV's construction: "[so as] to differentiate between types of traffic or service types and allocate a different level of system resources to an Internet Protocol (IP) flow."

2.   No Indefiniteness

Defendants provide scant briefing on indefiniteness, instead submitting an argumentative 18-page declaration from Dr. Rubin, which was filed after the close of claim construction discovery. What the Rubin declaration discloses, however, is that there are sharp factual disputes between the experts regarding the meaning of the specification, prosecution history, and claim language.

In *Teva v. Sandoz*, the Supreme Court held that indefiniteness often turns on underlying

fact questions, and that as a result, such determinations are subject to the same rules as other factual disputes with respect to the taking of evidence and appellate review. *Teva Pharm. USA, Inc. v. Sandoz, Inc.*, 135 S. Ct. 831, 834 (2015) (district court took expert testimony at trial on meaning of "molecular weight"). Since *Teva*, lower courts have applied this framework to take evidence where necessary to resolve fact disputes. Thus, in *Sonix Technology*, the Federal Circuit reversed a determination of indefiniteness at the summary judgment stage when there were competing expert opinions. *Sonix Tech. Co. v. Publ'ns Int'l, Ltd.*, 844 F.3d 1370, 1377 (Fed. Cir. 2017); *see also EON Corp. IP Holdings LLC v. AT&T Mobility LLC*, 785 F.3d 616, 620 (Fed. Cir. 2015) (affirming indefiniteness finding based on consideration of expert testimony).[2]

Here, IV has provided an expert declaration stating that after reading the specification and file history, a person of ordinary skill would understand the claims to require a network operator "to differentiate between types of traffic or service types and allocate a different level of system resources to an Internet Protocol (IP) flow." D.I. 111-10 (Williams Decl.) ¶¶ 16-28. Dr. Williams also explains that QoS is a well-understood term in telecommunications that engineers work with every day. Second Williams Decl. ¶ 5. When read in context, the patents teach how to optimize an IP flow by applying a set of parameters, such as the frequency of dropped packets or maximum delay between packets, to achieve a desired set of metrics for an IP flow of a particular type. *Id.* ¶¶ 10-11. This is what optimization means to a network engineer. By way of example, Dr. Williams discusses how the patents prioritize a Voice Over IP call to ensure

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[2] While Defendants rely on *Interval Licensing LLC v. AOL, Inc.*, 766 F.3d 1364 (Fed. Cir. 2014), that case was decided before *Teva*. Moreover, the term at issue, "unobtrusive manner," was highly subjective and not a term of art in the pertinent field. Accordingly, the Federal Circuit found that there were no factual issues in dispute.

optimized QoS to a cell phone user. *Id.* ¶ 9.

Defendants argue that "end user QoS" is a subjective term of degree which varies by user, but what is optimized in the asserted claims is an IP flow, and Defendants do not address this portion of the claim. It hardly follows from the fact that a network operator takes communications quality into account when tuning the network that he or she must interview users about their subject view of their "IP flows." The asserted claims must be interpreted from the perspective of a network engineer. Second Williams Decl. ¶¶ 5-7. Whatever difficulties there were with claim 20 of the '248 patent in relation to optimizing for a "software application," which in Defendants' construct, might include the user's subjective experience with Word, it is plain that optimizing for an IP flow, or a jitter-sensitive IP flow (as in '971 patent, claim 12), is a network-level decision. *Id.* ¶¶ 8-9. The basic premise of Defendants' argument—that the claims at issue here require reading the minds of users—is simply wrong.

The claims require optimizing for *an IP flow*, which can be done by allocating resources to that flow during transmission based on its priority. Large sections of the patent describe how to do that by using isochronous reservation patterns, periodic variation, and other tailored reservation schemes to ensure that packets arrive on time. *See, e.g.*, '206 patent, 58:28-60:28.

Finally, there are crucial flaws in Dr. Rubin's declaration. First, Dr. Rubin spends much of his declaration discussing the Delaware litigation and interpreting Judge Stark's order, which is not the province of an expert. He then reaches a summary conclusion that his opinion on "optimize" is the same for the '971, '206, and '248 patents without accounting for the difference in claim language. Rubin Decl. ¶¶ 42. Second, Dr. Rubin insists on looking at whether an IP flow is optimized by reference to "whatever manner the user defines it," without grappling with the fact that a user would not be aware of what an IP flow is and that the patents are directed to

engineers. *Id.* ¶¶ 45, 48. Third, he differs with Dr. Williams about what one of skill would

understand from reading the file history, creating an issue of fact for trial. *Compare* Rubin Decl.

at ¶ 50 *with* Williams Decl. at ¶¶ 23-26 and Second Williams Decl. at ¶ 12. Fourth, Dr. Rubin

does not construe the term "optimize . . . for an IP flow," which is necessary to evaluate whether

an objective test for infringement exists. Finally, he fails to contradict IV's position that if IV's

construction is accepted, one of skill in the art could apply it without difficulty. Any one of these

flaws would be sufficient to preclude a finding of indefiniteness.

3. No Collateral Estoppel

Differences between the claim language here and that of the previously-litigated '248

patent necessitate a distinct claim construction analysis. The '248 patent, claim 20, is a means

plus function claim which describes a system for optimizing "QoS requirements for a software

application" ('248 patent, cl. 20, 2:54-3:51). The Delaware decision construed that language to

require an infringer to poll users on the quality of the user experience with an application,

making the term subjective. D.I. 20-008, 20-21. But even if the determination that claim 20 was

poorly drafted is sustained on appeal, it hardly follows that every claim in the patent family

suffers from the same infirmity. The '971 and '206 patents claim systems which optimize the

QoS of a specific IP flow. In the case of the '971 patent, claim 12, the flow has the specific

attribute of being latency- or jitter-sensitive, which narrows the claim. The claims here are of

manifestly different scope than claim 20 of the '248 patent, and it is unreasonable to construe the

newly asserted claims as requiring an end user to identify his or her favorite IP flow.

Contrary to Defendants' assertion, IV has not "abandoned" these distinctions. They are

simply not claim construction or even indefiniteness points. It is Defendants who elected to brief

claim construction as if it had been decided in a prior case. IV provided an analysis of the

intrinsic record to construe the claim terms at issue, and that analysis is unrebutted. It is plain

that one can optimize for a specific IP flow, and equally plain that at best, there is a dispute

between the experts. In either case, there is no basis for invaliding the asserted claims under the

doctrines of indefiniteness or collateral estoppel.

V.   Claim 12 of the '971 Patent

      A.   "assigning means for assigning future slots of a transmission frame to a portion of said IP flow in said transmission frame for transmission over said shared wireless network"

Defendants assert that the construction of the "assigning means" term must expressly

recite an algorithm under *WMS Gaming, Inc. v. International Game Technology*, 184 F.3d 1339,

1348-49 (Fed. Cir. 1999). Defs. Br. 19. Here, the uplink and downlink schedulers are not

general purpose computers. Moreover, the algorithm is explicitly disclosed in the claim element

"assigning future slots of a transmission frame to a portion of said IP flow . . . ," language which

is parroted in Defendants' construction. The real point of dispute is over the reference to 61:65-

62:11, which appears to be an attempt to limit the prioritization of IP flows to two examples:

latency and jitter. Defs' Br. 19. As discussed in more detail below, the patent describes

numerous different factors which can be used to determine priority, and any such limitation

would be inappropriate. *See, e.g.*, '971 patent, 51:56-52:20; Fig. 8 (listing numerous priorities).

      B.   "means for applying an advanced reservation algorithm"

Defendants seek to limit the priority determination to latency and jitter sensitivity, citing

to '971 patent, 61:65-62:7. Curiously, they delete the key language, hiding it behind ellipses:

> In the present invention, an advanced reservation algorithm assigns future slots to data packets based on the priority of the IP data flow with which the packet is associated. ***Exemplary priorities are described above with respect to FIGS. 8A and 8B.*** For calls that are sensitive to jitter, meaning calls that are time sensitive, it is important to maintain an isochronous (i.e., in phase with respect to time) connection. With such signals, it is important that the data be dispersed in the same slot between frames, or in slots having a periodic variation between frames.

Defs' Br. 20 (citing to 61:65-62:7) (deleted language emphasized). The broad "exemplary

priorities" appear in Figures 8A and 8B (see box 812 listing priorities) and in columns 51-52:

> Block diagram **800** lists an exemplary set of priorities **812** used by downlink flow scheduler **604** to place received data packets into priority class queues. Listed are the following set of example priorities: latency-sensitive UDP priority **812** *a*, high priority **812** *b*, intermediate priority **812** *c*, initial hypertext transfer protocol (HTTP) screens priority **812** *d*, latency-neutral priority **812** *e*, file transfer protocol (FTP), simple mail transfer protocol (SMTP) and other e-mail traffic priority **812** *f* and low priority **812** *g*.

'971 patent, 51:56-52:20. Thus, Defendants sought to hide numerous priorities identified in the patent specification. Defendants' attempt to limit the claims to the priorities of latency and jitter should be rejected.

C. "means for reserving a first slot for a first data packet of an Internet Protocol (IP) flow in a future transmission frame based on said algorithm" / "means for reserving a second slot . . ."

The "means for reserving" incorporates its own algorithm—"said algorithm," i.e., the advanced reservation algorithm—from the prior element. Accordingly, the schedulers when running the advanced reservation algorithm are the corresponding structure. In addition, Defendants unnecessarily add the concept of a "current frame." This would potentially shift the meaning of the claim term. If the reservation is made after the transmission of the current frame but before the transmission of the next frame, it would be "reserved" as required, but there would be no "current frame." Defendants' construction will cause confusion.

VI. "means for taking into account service level agreement (SLA) based priorities for said IP flow"—'971 claim 18

IV's construction correctly identifies the disclosed structure, including that the scheduler is configured to apply a set of rules ("downlink flow scheduler 604 . . . based on a set of rules, schedules the data packets") that operate upon specific data ("the rules can be determined by inputs to the . . . scheduler from . . . a service level agreement priority data table 1570"). '971 patent, 63:47-56. This is the definition of an algorithm. Defendants' criticism that IV's

construction does not use the literal word "algorithm" promotes form over substance.

Furthermore, as explained in IV's opening brief, Defendants' proposed construction improperly limits the algorithm to one that only "increases or decreases queuing priority of an IP flow based on the service level agreement of the user." Opening Br. 20. Yet, the patent includes at least one embodiment in which frame slots can be allocated based on SLA priorities without changing their queuing priorities. '971 patent, 53:49-57. Defendants do not address this embodiment, much less the other relevant structures IV identified in its opening brief. Opening Br. 20.

VII.   "the analyzed contents"/ "the analyzed packet contents"—'517 claims 1, 12

The parties agree that antecedent basis for "analyzed contents" is found in the preceding step of "analyzing contents of packets." Defs' Br. 23; *see also* D.I. 111 at 22. Defendants attempt to limit the claim terms by the words "to be communicated over the shared wireless bandwidth in the downlink direction." *See* '517 patent, 81:45, 82:41. These words appear *elsewhere* in the claims, and Defendants do not explain why repeating the words is necessary.[3]

VIII.   "allocating the shared wireless bandwidth between the wireless base station transmitting in the downlink direction and the at least one CPE station transmitting in the uplink direction"/ "allocate wireless bandwidth between the uplink direction and the downlink direction responsive to the analyzed packet contents and the analyzed reservation requests"—'517 claims 1, 12

Prior to filing their brief, Defendants offered no explanation for inserting the notation "(1)" and "(2)" into the claims. Defendants now surprisingly contend this notation dictates that the "allocating" terms are limited to "dynamically" allocating slots between a "variable length downlink subframe" and a "variable length uplink subframe." Defs' Br. 25-28. There is a disconnect in Defendants' position because the notations "(1)" and "(2)" do not convey the

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[3] Defendants set up a strawman relating to the term "contents" and "portion." Defs' Br. 23-25. IV has no preference for "portion," and would agree to simply adopt "plain meaning."

complex limitations outlined in Defendants' brief. If Defendants wanted these claim terms to be limited as described in their brief, their proposed constructions should have articulated those limitations. In similar situations, this court has asked whether a proposed construction would help a jury understand the scope of a claim. *See 800 Adept, Inc. v. AT & T Mobility, LLC*, No. 5:07-CV-23, 2008 WL 4831093, at *10 (E.D. Tex. July 23, 2008). Here, a trier of fact would not understand the insertion of "(1)" and "(2)" to dictate that the claims are somehow limited to allocating "dynamically" using "variable length" subframes. Defendants' proposed construction should be rejected because "it is, at best, unhelpful, and at worst, confusing." *Id.* at *10.

Moreover, it would be improper to narrow claims 1 and 12 for other reasons. First, the patent specification emphasizes that these features are present only in "one embodiment." '517 patent, 52:65-53:2 (fields shown in Figs. 12A-12O including the variable length subframes 1202 and 1204 "merely refer to one embodiment of the present invention, and are not limiting to the numerous implementations of the present invention"); *see also* Defs' Br. 26-27. Second, the doctrine of claim differentiation weighs heavily against importing "dynamic" limitations into claim 1 because that limitation is recited in dependent claim 2. *See* '517 patent, 81:53-55, cl. 2 ("the bandwidth is allocated dynamically between the uplink direction and the downlink direction for each frame"); *see also AK Steel Corp. v. Sollac & Ugine*, 344 F.3d 1234, 1242 (Fed. Cir. 2003) (under the doctrine of claim differentiation, dependent claims are presumed to be of narrower scope than the independent claims from which they depend).

Finally, Defendants' arguments are also premised on a false assumption that claim terms "uplink" and "downlink" are the only objects of the preposition "between" recited in the claims. Defs' Br. 25 ("the allocation choice is between (1) the uplink direction and (2) the downlink direction"); *see also id.* at 25-26 (the allocation is "between two things: (1) the downlink

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transmission and (2) uplink transmission"). The assumption is false because the claims further require that the allocating is performed "between" a "wireless base station" and "at least one CPE station." *See* '517 patent, 81:42-47, cl. 1 ("allocating the shared wireless bandwidth between the wireless base station transmitting in the downlink direction and the at least one CPE station transmitting in the uplink direction"). Reading the claims as a whole, "allocating … between" broadly encompasses allocating some bandwidth to a wireless base station, some to a first CPE station, some to a second CPE, and so on. *Id.* Defendants' arguments improperly preclude coverage of allocating bandwidth "between" multiple CPE stations. Defendants impermissibly read the words "base station" and "CPE" out of the claim. *Merck & Co. v. Teva Pharm. USA, Inc*., 395 F.3d 1364, 1372 (Fed. Cir. 2005) ("A claim construction that gives meaning to all the terms of the claim is preferred over one that does not do so").

IX.   "said plurality of packets"—'206 claim 109

"Said two or more packets" is the exact meaning of "said plurality of packets." IV's construction explicitly includes the word "said," and Defendants' criticisms on that point are misplaced. *See* D.I. 110 (Amended 4-3 Statement) at 14.

X.   Conclusion

For all the foregoing reasons, IV respectfully requests that the Court adopt IV's proposed constructions for each of the terms in dispute.

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DATED: August 20, 2018

Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that a copy of the foregoing document was filed electronically in compliance with Local Rule CV-5(a). Therefore, this document was served on all counsel who are deemed to have consented to electronic service. Local Rule CV-5(a)(3)(A). Pursuant to Fed. R. Civ. P. 5(d) and Local Rule CV-5(d) and (e), all other counsel of record not deemed to have consented to electronic service were served with a true and correct copy of the foregoing by email on this the 20th day of August, 2018.

/s/ Laura E. Fleming
Laura E. Fleming

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